APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,736	04/25/2000	Heng Liao	016491-002610US	9933

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EXAMINER
EL CHANTI, HUSSEIN A

ART UNIT	PAPER NUMBER
2157	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

PR¢

	Application No	Applicant(s)
Office Action Summary	09/557,736	LIAO, HENG
	Examiner	Art Unit
	Hussein A El-chanti	2157

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE **3** MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2000* .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

　If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　a)☐ All b)☐ Some * c)☐ None of:

　　1.☐ Certified copies of the priority documents have been received.

　　2.☐ Certified copies of the priority documents have been received in Application No. _____ .

　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
　　　application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

　a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4)☐	Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5)☐	Notice of Informal Patent Application (PTO-152)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2,4* .	6)☐	Other:

U.S. Patent and Trademark Office
PTO-326 (Rev. 04-01)   Office Action Summary   Part of Paper No. 5

DETAILED ACTION

1.   This action is responsive to application filed on April 25, 2000. Claims 1-30 are

pending examination.

Specification

2.   The disclosure is objected to because of the following informalities: the third line

of page 1 of the application doesn't state the application number and line 13 of page 3

of the application doesn't state the co-pending application number,

        Appropriate correction is required.

Claim Rejections - 35 USC § 102

        The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Riddle et al.,

U.S. Patent No. 6,457,051 (referred to hereafter as Riddle).

        Riddle teaches the invention as claimed including a system for protocol

processing in a computer network (see abstract).

        As to claim 1, Riddle teaches a method for identifying protocol encapsulation in

received network data comprising providing a grammar and parsing incoming network

data using said grammar, said network data being organized into data packets (see col.

13 lines 57-67 and claim 1, where the grammar is the rules of matching the data

packets to a traffic specification).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in

view of Del Monte, U.S. Patent No. 5,704,060.

As to claim 2, Riddle teaches a method for identifying protocol encapsulation in

received network data comprising providing a grammar and parsing incoming network

data using said grammar, said network data being organized into data packets (see the

rejection of claim 1) wherein said grammar is a grammar graph (see claim 3, tree type

node being the grammar graph). Riddle doesn't teach the method of claim 1 wherein the

method further including providing a deterministic finite automaton (DFA) representing

said grammar graph.

However, Del Monte teaches providing a deterministic finite automaton (DFA)

representing grammar graph (see col. 14lines 21-31).

It would have been obvious for one of the ordinary skill in the art at the time of

the invention to modify Riddle in view of including a DFA representing said grammar

graph as in Del Monte. One would be motivated to include a DFA in Riddle because

doing so would allow the network to map an ordered sequence of input events into a corresponding sequence according to the control section of the data where the next state is uniquely determined by a single input event.

5.   Claims 3, 4, 6-8 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in view of Tang, U.S. Patent No. 6,378,126.

As to claim 3, Riddle teaches a method for identifying protocol encapsulation in received network data comprising providing a grammar and parsing incoming network data using said grammar, said network data being organized into data packets (see the rejection of claim 1.

Riddle doesn't teach the method of claim 1 further including scanning said incoming network data using lexical token scanning to produce plural lexical tokens.

However Tang teaches scanning said incoming network data using lexical token scanning to produce plural lexical tokens and parsing said lexical tokens (see abstract, statements in a program are lexically scanned and parsed into a parse tree).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of lexically scanning incoming data packets and parsing the lexical tokens as in Tang. One would be motivated to include lexical scanning of packets and parsing lexical tokens in Riddle because doing so would allow the processor to read the specific lexical token relating to the control protocol layer that the instruction belongs to rather than reading the whole instruction or packet and thus creating faster communications medium and faster data routing.

As to claim 4, Tang also teaches lexical scanning includes providing a set of regular expressions (see abstract).

As to claim 6, Riddle teaches a method for processing data packets comprising:

providing a grammar (see claim 1, where the grammar is the rules of matching the data packets to a traffic specification).;

receiving plural data packets, each having a length not necessarily equal to one another (see claim 1); and

parsing data to produce one or more identified protocols, and processing said data packet based on said identified protocols (see fig. 4A and its corresponding illustration).

Riddle doesn't teach the limitation "lexically scanning data packet to produce lexical tokens". However Tang teaches lexically scanning data packet to produce lexical tokens (see abstract, statements in a program are lexically scanned and parsed into a parse tree).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of lexically scanning incoming data packets and parsing the lexical tokens as in Tang. One would be motivated to include lexical scanning of packets and parsing lexical tokens in Riddle because doing so would allow the processor to read the specific lexical token relating to the control protocol layer that the instruction belongs to rather than reading the whole instruction or packet and thus creating faster communications medium and faster data routing.

As to claim 7, Riddle teaches the method of claim 6 further including compiling said grammar to produce grammar graph (see claim 3).

As to claim 8, Riddle teaches the method of claim 7 wherein said scanning includes providing regular expressions for identifying said lexical tokens (see Table. 3 in col. 15).

As to claim 27, Riddle teaches a network packet classifier comprising:

means for receiving an incoming network packet (see fig. 1 and its corresponding illustration); and

means for identifying protocol structure in said network packet including means for scanning to match patterns in its constituent data against plural regular expressions and means for parsing through said lexical tokens using a grammar (see claim 1 and Table. 3 included in col. 15).

Riddle doesn't teach the method of claim 1 further including scanning said incoming network data using lexical token scanning to produce plural lexical tokens.

However Tang teaches scanning said incoming network data using lexical token scanning to produce plural lexical tokens and parsing said lexical tokens (see abstract, statements in a program are lexically scanned and parsed into a parse tree).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of lexically scanning incoming data packets and parsing the lexical tokens as in Tang. One would be motivated to include lexical scanning of packets and parsing lexical tokens in Riddle because doing so would allow the processor to read the specific lexical token relating to the control protocol layer that

the instruction belongs to rather than reading the whole instruction or packet and thus

creating faster communications medium and faster data routing.

6.   Claims 5, 9, 10, 18, 22, 23, 28 and 29 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Riddle in view of Tang in further view of Del Monte.

As to claims 5, 9 and 10, Riddle and Tang do not teach the limitation "providing a

DFA including a representation of said lexical tokens and said grammar".

However, Del Monte teaches providing a deterministic finite automaton (DFA)

representing grammar (see col. 14 lines 21-31).

It would have been obvious for one of the ordinary skill in the art at the time of

the invention to modify Riddle in view of including a DFA as in Del Monte including a

representation of said lexical tokens as in Tang. One would be motivated to include a

DFA including recognizing the lexical tokens using the DFA in Riddle because doing so

would allow the DFA to determine the protocol in which the packet is to be implemented

and map an ordered sequence of input events into a corresponding sequence according

to the control section of the data where the next state is uniquely determined by a single

input event.

As to claim 18, Riddle teaches a network data packet classifier comprising an

input port for receiving network data packets comprising a stream of data (see fig. 1 and

abstract), a grammar graph and plural regular expressions (see col. 14 line 21-31 and

claim 1), identify a protocol structure in a received network data packet wherein

processing of said network data depends on said protocol structure (see fig. 4A and its

corresponding illustration.

Riddle doesn't teach the limitation "representing said grammar graph and decompression logic producing lexical tokens".

However Tang teaches scanning said incoming network data using lexical token scanning to produce plural lexical tokens and parsing said lexical tokens (see abstract, statements in a program are lexically scanned and parsed into a parse tree) and Del Monte teaches providing a deterministic finite automaton (DFA) representing grammar graph (see col. 14lines 21-31) and teaches decompression logic configured to scan data with said DFA (see col. 1).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of decompression logic configured to scan data with DFA as in Del Monte and parsing lexical tokens as in Tang. One would be motivated modify Riddle by using a DFA and a decompression logic and parsing lexical tokens because doing so would allow the network to map an ordered sequence of input events into a corresponding sequence by scanning the lexical tokens according to the control section of the data where the next state is uniquely determined by a single input event.

As to claim 22, Riddle teaches network data vary from one packet to another (see abstract and claim 1).

As to claim 23, Del Monte teaches DFA is in compressed form (see col. 2 lines 42-56

As to claim 28, Del Monte teaches means for scanning includes a memory component configured with data to represent a deterministic finite automaton (DFA) (see fig. 1 and its corresponding illustration and col. 14 lines 21-31)

As to claim 29, Riddle teaches memory component is configured to include said grammar (see fig. 1A and its corresponding illustration).

7.   Claims 15 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in view of Tang in further view of Boucher et al., U.S. Patent No. 6,226,680 (referred to hereafter as Boucher).

Riddle and Tang do not teach the limitation "arithmetic logic unit configured to perform operations in accordance with arithmetic specifier". However Boucher teaches method of protocol processing including an arithmetic logic unit configured to perform operations in accordance with arithmetic specifiers (see fig. 14 and its corresponding illustration).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Riddle and Tang in view of using an arithmetic and logic unit to perform operations as in Boucher. One would be motivated to include an arithmetic logic unit in Riddle because doing so would allow faster classification of data packets since the processing and determination of the data packets properties are done by the arithmetic logic unit rather than being done by the network processor that might have an overload due to the traffic coming in and out of the network.

8.   Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable
over Riddle in view of Tang, in view of Del Monte further in view of Moreno.

As to claim 16, Riddle and Tang teach a method for classifying received network
data comprising scanning incoming data using lexical token scanning wherein said
network data is treated as a stream of input bytes, said network data being organized
into data packets, said scanning resulting in the identification of a data packet belonging
to one of a plurality of classes.

Riddle and Tang do not teach the limitation "some of said states further include a
skip instruction". However Moreno teaches a skip instruction (see claims 7 and 8).

It would have been obvious for one of the ordinary skill in the art at the time of
the invention to modify Riddle in view of identifying a skip operation and in response
thereto skipping over one or more subsequent input bytes as in Moreno. One would be
motivated to modify Riddle in view of identifying a skip operation and in response
thereto skipping over one or more subsequent input bytes because doing so would
allow the processor to detect an error in the stream of incoming data and skip to the
next data stream by detecting address of the beginning of the next incoming data
packet.

As to claim 17, Riddle teaches regular expressions include data storage
operations (see col. 13 lines 48-56).

9.   Claims 19, 20, 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable
over Riddle in view of Tang in view of Del Monte, further in view of Boucher.

Riddle, Tang and Del Monte do not teach the limitation "arithmetic logic unit configured to perform operations in accordance with arithmetic specifier". However Boucher teaches method of protocol processing including an arithmetic logic unit configured to perform operations in accordance with arithmetic specifiers (see fig. 14 and its corresponding illustration).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Riddle and Tang in view of using an arithmetic and logic unit to perform operations as in Boucher. One would be motivated to include an arithmetic logic unit in Riddle because doing so would allow faster classification of data packets since the processing and determination of the data packets properties are done by the arithmetic logic unit rather than being done by the network processor that might have an overload due to the traffic coming in and out of the network.

As to claim 20, Boucher teaches at least one register operatively coupled to said arithmetic logic unit where arithmetic logic unit further configured to store data into said register in response to save instruction (see fig. 14 and its corresponding illustration).

As to claim 24, Boucher teaches a base memory, next state memory and base memory configured to contain address locations of said next state memory (see fig. 15A-C).

As to claim 25, Boucher teaches memories are random access memories (see fig. 15A).

As to claim 26, Boucher teaches said memories are read-only memories (see fig. 13 and its corresponding illustration).

10.   Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Riddle in view of Tang, in view of Del Monte in view of Boucher further in view of Moreno.

Riddle does not teach the limitation "some of said states further include a skip instruction". However Moreno teaches a skip instruction to skip over an amount of data (see claims 7 and 8).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Riddle in view of identifying a skip operation and in response thereto skipping over one or more subsequent input bytes as in Moreno. One would be motivated to modify Riddle in view of identifying a skip operation and in response thereto skipping over one or more subsequent input bytes because doing so would allow the processor to detect an error in the stream of incoming data and skip to the next data stream by detecting address of the beginning of the next incoming data packet.

Claims 11-14 do not add any new limitations above claims 1-13 and therefore are rejected for similar reasons.

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein El-chanti whose telephone number is (703) 305-4652. The examiner can normally be reached on Monday through Thursday from 8:00 am. – 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ario Etienne can be reached on (703)308-7562. The fax phone numbers

for the organization where this application or proceeding is assigned are (703)746-9679

for regular communications and (703)746-9679 for After Final communications.

Any inquiry of a general nature relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703)

305-3900.

Hussein El-chanti Fax #   (703) 746-9679
After Final Rejection Fax #   (703) 746-7238
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Date: 8/21/2003

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